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## Humanized Immunoglobulin Light Chain Variable Region

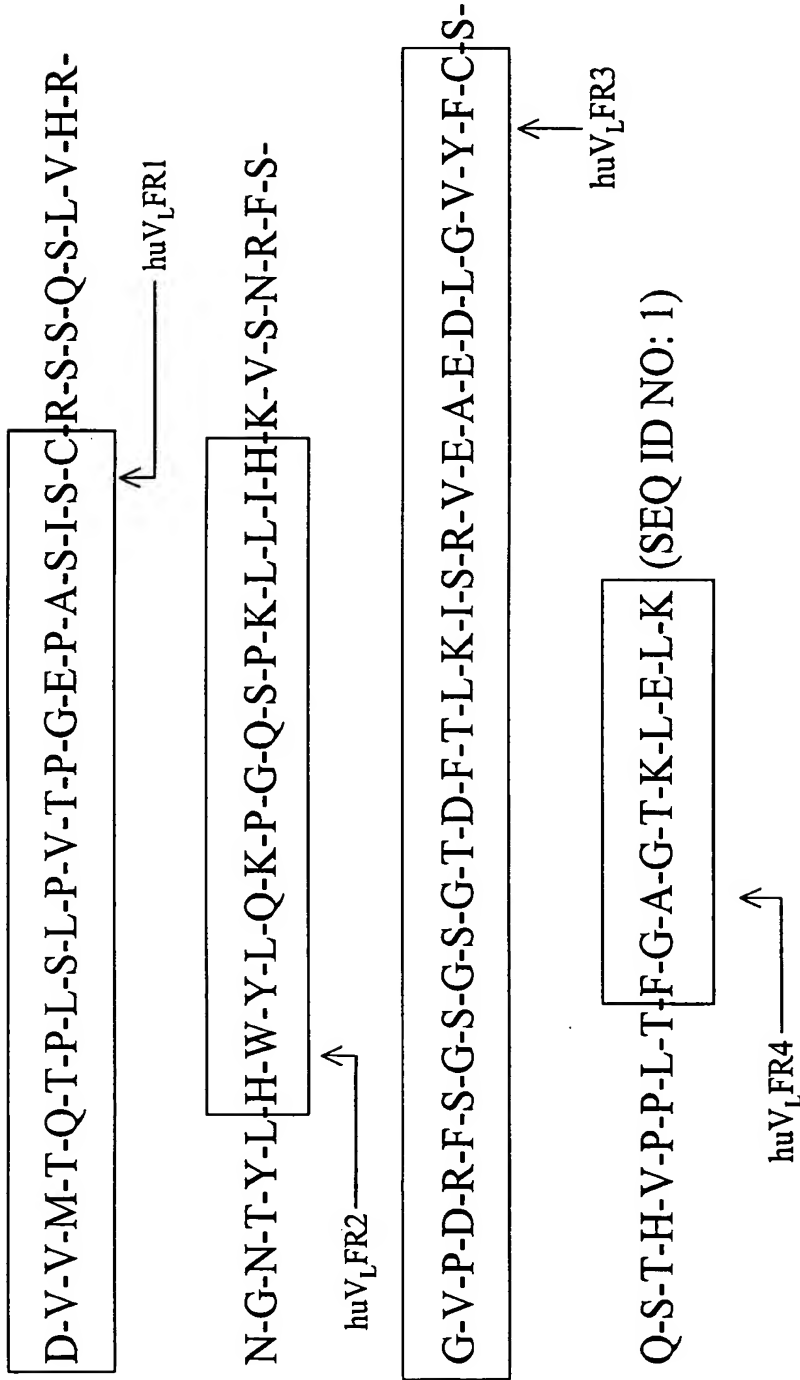


FIG. 1A

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# Humanized Immunoglobulin Heavy Chain Variable Region

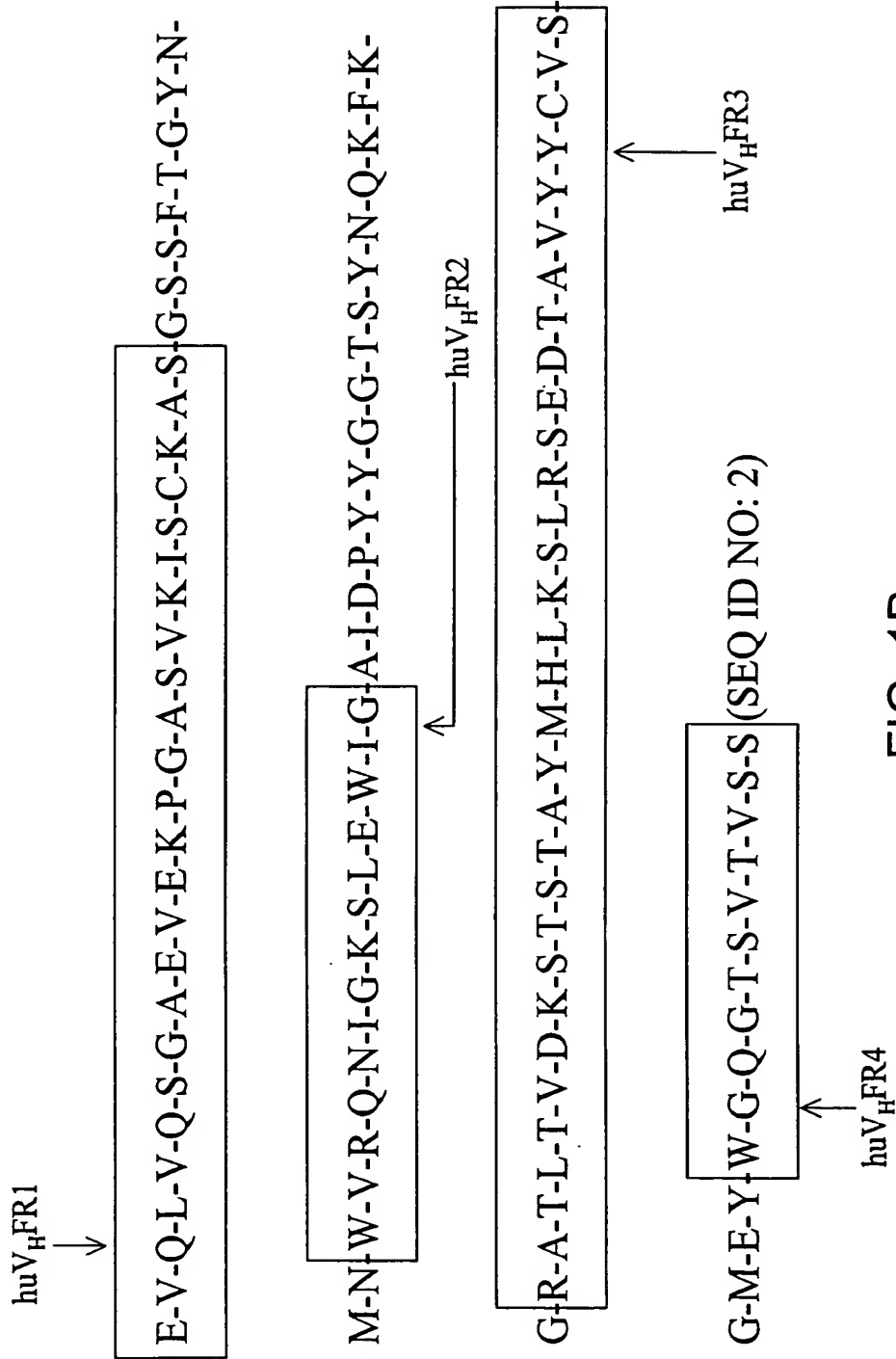


FIG. 1B

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## Expression Vector Nucleotide Sequence

GTCGACATTGATTATTGACTAGTTATTAATAGTAATCAATTACGGGGTCATTAGTTCATAGCCCCAT  
ATATGGAGTTCGGGTTACATAACTTACGGTAAATGGCCCGCTGGCTGACCGCCCAACGACCCCC  
GCCCATTGACGTCAATAATGACGTATGTTCCCATAGTAACGCCAATAGGGACTTTCCATTGACGTC  
AATGGGTGGAGTATTTACGGTAAACTGCCCACTTGGCAGTACATCAAGTGTATCATATGCCAAGTA  
CGCCCCCTATTGACGTCAATGACGGTAAATGGCCCGCTGGCATTATGCCCAGTACATGACCTTAT  
GGGACTTTCCTACTTGGCAGTACATCTACGTATTAGTCAATCGCTATTACCATGGTGATGCGGTTTGG  
GCAGTACATCAATGGGCGTGATAGCGGTTTGACTCACGGGGATTTCCAAAGTCTCCACCCCATTTGA  
CGTCAATGGGAGTTTGTTTTGGCACCAAAATCAACGGGACTTTCCAAAAATGTCTGTAACAACCTCCGC  
CCCATTGACGCAAAATGGGCGGTAGGCGGTACGGTGGGAGGTCTATATAAGCAGAGCTCTCTGGC  
TAACTACAGAAACCCACTGCTTAACCTGGCTTATCGAAATTAATACGACTCACTATAGGGAGACCCCTC  
TAGAATGAAGTTGCCCTGTAGGCTGTTGGTGTGATGTTCTGGATTCTGTGGTGGAGAGAGGGGAA  
GTAGGGGAGGAGAAATGGACAGGGAGCAGGAGCACTGAATCCCATTTGCTCATTTCCATGTATCTGGC  
ATGGGTGAGAAAGATGGGTCTTATCCTCCAGCATGGGGCCTCTGGGTGAATACTTGTAGAGGGA  
GGTCCAGATGGGAACATGTGCTATAATGAAGATTATGAAATGGATGCCCTGGGATGGTCTAAGTA  
ATGCCTTAGAAGTGACTAGACACTTGCAATTCACTTTTGTGGTAAGAAGAGATTTTTAGGCTATA  
AAAAATGTTATGTAAAAATAAACGATCACAGTTGAAATAAAAAATAAAGGATGTTTCATG  
AATTTTGTGTATAACTATGTATTTCTCTCTCAATTGTTTCAGCTTCCCTTAAGCGACGTGTGATGACC  
CAGACCCCCCTGTCCCTGCCCGTGACCCCCGGCGAGCCCCCTCCATCTCCTGCAGATCTAGTCAG  
AGTCTTGTAACCGTAATGGAAACACCTATTACATTGTAACCTGCAGAAAGCCAGGCCAGTCTCCA  
AAGCTCCTGATTCACAAAGTTTCCAAACCGATTTTCTGGGTCCCGAGACAGGTTCAAGTGGCAGTGGA  
TCAGGGACAGATTTACACTCAAGATCAGCAGAGTGGAGGCTGAGGATCTGGGAGTTTATTTCTGT  
TCTCAAAGTACACATGTTCTCCGCTCACGTTCCGGTCTGGGACCAAGCTGGAGCTGAACGTAATT  
AGTGTGTCAGGGTTTCACAAGAGGGACTAAAGACATGTCAGCTATGTGTGACTAATGTTAATGTC

FIG. 2A

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ACTAAGCTGCGGATCCCGCAATTCTAACTCTGAGGGGTCGGATGACGTGGCCATTCTTTGCCT  
AAAGCATTGAGTTTACTGCAAGGTCAGAAAGCATGCAAGCCCTCAGAAATGGCTGCAAAGAGCT  
CCAACAAAACAATTAGAACTTTATTAAGGAATAGGGGAAGCTAGGAAGAAACTCAAAACATCA  
AGATTTTAAATACGCTTCTTGGTCTCCTTGTCTATAATTATCTGGGATAAGCATGCTGTTTCTGTCT  
GTCCCTAACATGCCCTGTGATTATCCGCAAAACAACACACCCAGGGCAGAACTTTGTTACTTAAAC  
ACCATCCTGTTGCTTCTTCCCTCAGGAACCTGTGGCTGCACCATCTGTCTTCATCTTCCCGCCATCTG  
ATGAGCAGTTGAAATCTGGAACCTGCTCTGTGTGCTGCTGCTGAATAACTTCTATCCCAGAGAGG  
CCAAGTACAGTGAAGGTGGATAACGCCCTCCAATCGGGTAACCTCCAGGAGAGTGTCAACAGAG  
CAGGACAGCAAGGACAGCACCTACAGCCTCAGCAGCACCTGACGCTGAGCAAAAGCAGACTACG  
AGAAACACAAGTCTACGCCTGCGAAGTCAACCCATCAGGGCTGAGCTCGCCCTCACAAAGAGC  
TTCAACAGGGGAGAGTGTTAGAGGGAGAAAGTGCCCCACCTGCTCCTCAGTCCAGCTGACCCCC  
TCCCATCCTTTGGCCTCTGACCCCTTTTCCACAGGGACCTACCCCTATTGCGGTCTCCAGCTCAT  
CTTTCACCTCACCCCCCTCCTCCTGCTTAAATTAATGCTAAATGTTGAGGAGAAATGAATAAAT  
AAAGTGAAATCTTTGCACCTGTGGTTTCTCTCTTCCCTCAATTTAATAATTAATCTGTTGTTACCA  
ACTACTCAATTTCTCTTAAGGGACTAAATATGAGTCACTCCTAAGGCGCATACCAATTTATAAA  
AATCATCCTTCAATCTATTTACCTATCATCTCTGCAAGACAGTCCCTCCCTCAAAACCCACAAGCC  
TTCTGTCCCTCACAGTCCCTGGGCCATGGTAGGAGAGACTTGCTTCTGTTTTTCCCTCCTCAGCA  
AGCCCTCATAGTCCCTTTTAAAGGGTGACAGGCTTACGGTCATATATCCTTTGATTCAATTCCCTGG  
GAATCAACCAAGGCAAAATTTTCAAAAGAAAGAAACCTGCTATAAAGAGAAATCAATTCAATTGCAACA  
TGATATAAAATAACACACAATAAAAGCAATTAATAACAAACAATAGGGAAATGTTTAAAGTTC  
ATCATGGTACTTAGACTTAATGGAAATGTCAATGCCTTATTTACATTTTAAACAGGTACTGAGGGAC  
TCCTGTCTGCCAAGGCCGTATTGAGTACTTTCCACAACCTAATTTAATCCACACTATACTGTGAG  
ATTAAACATTCAATTAATGTTGCAAGGTTCTATAAAGCTGAGAGACAAATATAATCTATAAC  
TCAGCAATCCCACTTCTAGGGTCGATCGACGTTGACATTGATTATTGACTAGTTATTAATAGTAATC  
AATTACGGGTCAATTAGTTTCATAGCCCATATAATGGAGTCCGCGTTACATAACTTACGGTAAATGG  
CCCGCTGGCTGACCGCCCAACGACCCCCGCCAATGACGTCATAATGACGTAATGTTCCCATAGT  
AAGCCCAATAGGGACTTTCCATTGACGTCAATGGGTGGAGTATTTACGGTAAACTGCCCACTTGGC  
AGTACATCAAGTGTATCATATGCCAAGTACGCCCCCTATTGACGTCATGACGGTAAATGGCCCCG

FIG. 2B

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CTGGCATTATGCCAGTACATGACCTTATGGGACTTTCCTACTTGGCAGTACATCTACGTATTAGTC  
ATCGCTATTACCATGTGATGCGGTTTTTGGCAGTACATCAATGGCGTGGATAGCGGTTTGACTCA  
CGGGGATTTCCAAGTCTCCACCCCAATTGACGTCAATGGGAGTTTGTTTTGGCACCAAAATCAACGG  
GACTTTCCAAAATGTGTAACAACCTCCGCCCAATTGACGCAAAATGGCGGTAGGCGGTACGGTG  
GGAGGTCTATATAAGCAGAGCTCTCTGGCTAACTACAGAACCCACTGCTTAACTGGCTTATCGAAA  
TTAATACGACTACTATAGGGAGACCCAAAGCTCCTCGAGGCTAGAAATGAAGTTGCCCTGTAGGCTG  
TTGGTGCTGATGTTCTGGATTCTCTGGTGAGGAGAGAGGGAAGTGAGGAGGAGAAATGGACAGGGA  
GCAGGAGCACTGAATCCCAATGCTCATTCCTATGTATCTGGCATGGGTGAGAAAGATGGGTCTTATCC  
TCCAGCATGGGCGCTCTGGGTGAATACTTGTAGAGGAGGTTCCAGATGGGAACATGTGCTAT  
AATGAAGATTATGAATGGATGCCCTGGGATGGTCTAAGTAATGCCCTTAGAAGTGACTAGACACTT  
GCAATTCACTTTTGTGTAAGAGAGATTTTTAGGCTATAAAAATGTTATGTAAAAATAAACG  
ATCACAGTTGAAATAAAAAAATAAAGGATGTTTCAATGAATTTTGTGTATAACTATGTTTCT  
CTCTCATTTGTTTCAGCTTCTTAAAGCGAGGTGCAGCTGGTGCAAGTCCGCGCGGAGGTGGAGAAAGC  
CCGGCGCCTCCGTGAAGATCTCCTGCAAGGCCCTCCGGCTCCTCCTTCAACCGGCTACAACATGAAC  
GGGTGCGCCAGAACATCGGCAAGTCCCTGGAGTGATCGGCGCCATCGACCCCTACTACGGCGGC  
ACCTCCTACAACCAGAAATTCAAGGGCCGCGCCACCCTGACCGTGGAACAAGTCCACCTCCACCCG  
CTACATGCACCTGAAGTCCCTGCGCTCCGAGGACACCGCCGTGTACTACTGCGTGTCCGGCATGGA  
GTACTGGGGCCAGGGCACCTCCGTGACCGTGCTCCTCCGGTAAGCTTTTCTGGGGCAGGCCAGGCCT  
GACCTTGGCTTTGGGCGAGGGAGGGGCTAAGGTGAGGCAGGTGGCGCCAGCCAGGTGCACACCC  
AATGCCCATGAGCCAGACACTGACGCTGAACCTCGCGGACAGTTAAGAACCCAGGGGCCCTCTG  
CGCCCTGGGCCCCAGTCTGTCCACACCGCGGTCAATGGACCAACCTCTCTTTCAGCCCTCCACCA  
AGGGCCCATCGGTCTTCCCCCTGGCACCTCCTCCAAGAGCACCTCTGGGGGCACAGCGGCCCTGG  
GCTGCCCTGGTCAAGGACTACTTCCCCGAACCGGTGACGGTGTCTGTGGAACCTCAGGCGCCCTGACCA  
GCGGCGTGACACACCTTCCCGGCTGTCTCTACAGTCCCTCAGGACTCTACTCCCTCAGCAGCGGTGGA

FIG. 2C

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CCGTGCCCTCCAGCAGCTTGGGCACCCAGACCTACATCTGCAACGTGAATCACAAGCCCCAGCAAC  
ACCAAGGTGGACAAGAGAGTTGGTGAGAGGCCAGCACAGGAGGGAGGGTGTCTGTCTGCTGGAGGCC  
AGGCTCAGCGCTCCTGCTGACGCATCCCGGCTATGCAGTCCCAGTCCAGGGCAGCAAGGCAGG  
CCCCGTCTGCCCTTCAACCCGAGGCCTCTGCCCCCCTCATGCTCAGGGAGAGGGTCTTCTG  
GCTTTTCCCCAGGCTCTGGGCAGGCACAGGCTAGGTGCCCTAACCCAGGCCCTGCACACAAGG  
GGCAGGTGCTGGGCTCAGACCTGCCAAGAGCCATATCCGGAGGACCTGCCCTGACCTAAGCC  
CACCCCAAAGGCCAAACTCTCCACTCCCTCAGCTCGGACACCTTCTCTCTCTCCAGATTCCAGTAA  
CTCCCAATCTTCTCTGCAAGCCCAAATCTTGTGACAAACTCACACATGCCCAACCGTGCCCCAG  
GTAAGCCAGCCAGGCTCGCCCTCCAGCTCAAGCGGGACAGGTGCCCTAGAGTAGCCTGCATC  
CAGGGACAGCCCCAGCCGGGTGCTGACACGTCCACCTCCATCTCTTCTCAGCACCTGAACCTCCT  
GGGGGACCGTCAGTCTTCCCTCTTCCCCCAAAACCCCAAGGACACCCCTCATGATCTCCCCGACCCC  
TGAGGTCACATGCGTGGTGGACGTGAGCCACGAAGACCTGAGGTCAAGTTCAACTGGTAGC  
TGACGGCGTGAGGTGCATAATGCCAAGACAAAGCCGCGGAGGAGCAGTACAACAGCACGTA  
CCGTGTGTCAGGTCCTCACCCTCTGACACGACTGGCTGAATGGCAAGGAGTACAAGTGCA  
AGGTCTCCAAACAAGCCCTCCAGCCCCCATCGAGAAACCATCTCCAAAGCCAAAGGTGGGACC  
CGTGGGTGCGAGGGCCACATGGACAGAGCGCGGCTCGGCCACCTCTGCCCCTGAGAGTGACCG  
CTGTACCAACCTCTGTCCCTACAGGCAGCCCCGAGAACCAAGGTGTACACCCCTGCCCCCATCAC  
GGGAGGAGATGACCAAGAACAGGTACGCTGACCTGCTGGTCAAAGGCTTCTATCCCAGCGAC  
ATCGCCGTGGAGTGAGACAATGGGAGCGCGAGAACAACTACAAGACCAAGCCCTCCCGTGCT  
GGACTCCGACGGCTCCTTCTCTCTATAGCAAGCTCACCGTGGACAAGAGCAGGTGGCAGCAGG  
GGAACGTCTTCTCATGCTCCGTGATGCATGAGGCTCTGCACAACCACTACACGCAGAAAGAGCCTCT  
CCCTGTCCCCGGTAAAGCCCCCACTTCAAGTTCTACAAAGAAACACAGCTGCAACTGGAGCAT  
CTCCTGTGGATCTCCAGATGATTTCTGAATGGAAATTAACAACCTACAAGAATCCCAAACTCACCAGG  
ATGCTCACATTCAAGTTCTACATGCCCAAGAGGCCACAGAGCTCAAACATCTCCAGTGTCTAGAG  
GAGGAACCTCAAACCTCTGGAGGAAGTGCTAAACCTCGCTCAGAGCAAAAACCTCCACTTAAGACC  
TAGGGACTTAATCAGCAATATCAACGTAATAGTTCTGGAACTAAAGGGATCCGAAACAACATTCA  
TGTGTGAATATGCTGATGAGACAGCAACCAATTGTAGAAATTTCTGAACAGATGGATTACCTTTTGTCT

FIG. 2D

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AAAGCATCTCAACACTAACTTGATAATTAAGTGCTCGAGGGATCCAGACATGATAAGATACA  
TTGATGAGTTTGGACAAACCACAACTAGAAATGCAGTGAAAAAAATGCTTTATTTGTGAAATTTGTG  
ATGCTATTGCTTTATTGTAAACCATTAGAAGCTGCAATAAACAAAGTTAAACAACAATTGCATTC  
ATTTTATGTTTCAGGTTTCAGGGGGAGGTGTGGAGGTTTTTTAAAGCAAGTAAACCTCTACAAAT  
GTGGTATGGCTGATTATGATCCTGCCTCGCGGTTTCGGTGATGACGGTGAAACCTCTGACACAT  
GCAGTCCCGGAGACGGTCACAGCTTGCTGTAAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGG  
GCGGTCAGCGGGTGTTGGCGGTGTGCGGGCGCAGCCATGACCCAGTCACGTACGTAGCGATAGCGGA  
GTGTATACTGGCTTAACATATGCGGCATCAGAGCAGATTGTACTGAGAGTGCACCATATGCGGTGTG  
AAATACCGCACAGATGCGTAAGGAGAAAAATACCGCATCAGCGCTCTTCGGCTTCCTCGCTCACTG  
ACTCGCTGCGCTCGTTCGGCTGCGGCGAGCGGTATCAGCTCACTCAAAGGCGGTAATACGGT  
TATCCACAGAAATCAGGGGATAACGCAGGAAAGAACATGTGAGCAAAGGCCAGCAAAGGCCAG  
GAACCGTAAAAAGGCCGCTTGCTGGCGTTTTCCATAGGCTCCGCCCCCTGACGAGCATCAAA  
AAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAGATACCAAGCGTTTCCCC  
CTGGAAGCTCCCTCGTGCCTCTCCTGTTCGACCCCTGCCGCTTACCGGATACCTGTCCGCTTCT  
CCCTTCGGGAAGCGTGGCGCTTTCTCAATGCTCAGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTT  
CGCTCCAAAGCTGGGCTGTGTGCACGAACCCCGTTTCAGCCGACCGCTGCGCTTATCCGGTAAC  
TATCGTCTTGAGTCCAAACCCGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGG  
ATTAGCAGAGCGAGGTATGTAGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTA  
CACTAGAAGGACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGG  
TAGCTCTTGATCCGGCAACAACCAACCGCTGTGAGCGGTGTTTTTTTGTTCGAAGCAGCAGAT  
TACGGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGGTCTGACGCTCAGTG  
GAACGAAACTCACGTTAAGGGATTTTGGTCAATGAGATTATCAAAAAAGGATCTTCACCTAGATCCT

FIG. 2E

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TTTAAATTAAAGTTTAAATCAATCTAAAGTATATATGAGTAAACTTGGTCTGACAGTTA  
CCAATGCTTAATCAGTAGGCACCTATCTCAGCATCTGTCTATTTCTGTTCAATCCATAGTTGCCCTGA  
CTCCCCGTCTGTAGATAACTACGATACGGGAGGGCTTACCACTCTGGCCCCAGTGTGCAATGATA  
CCGCGAGACCCACGCTCACCGGCTCCAGATTTATCAGCAATAAACCCAGCCAGCCGGAAGGGCCGA  
GCGCAGAAGTGGTCTGCAACTTTATCCGCTCCATCCAGTCTATTAATTGTTGCCGGGAAGCTAG  
AGTAAGTAGTTCGCCAGTTAATAGTTTGCACAACGTTGTTGCCATTGCTGCAGGCATCGTGGTGTC  
ACGCTCGTCTTGGTATGGCTTCAATTCAGCTCCGGTTCCCAACGATCAAGCGGAGTTACATGATC  
CCCCATGTTGTGCAAAAAGCGGTTAGCTCCTTCGGTCTCCGATCGTTGTCAGAAAGTAAGTTGGC  
CGCAGTGTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACTGTCTATGCCATCCGTAAGA  
TGCTTTTCTGTGACTGGTAGTACTCAACCAAGTCATTTCTGAGATAGTGTATGCGGCGACCGAGT  
TGCTCTTGGCCGGGTCAACACGGGATAATACCGCGCCACATAGCAGAACTTTAAAGTGCTCATC  
ATTGGAACACGTTCTTCGGGGCGAAACTCTCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATG  
TAACCCACTCGTGCAACCACTGATCTTCAGCATCTTTTACTTTCACCGCGTTTCTGGGTGAGCAA  
AAACAGGAAGGCAAAATGCCGCAAAAAGGGAAATAAGGGCGACACGGAAATGTTGAATACTCAT  
ACTCTTCCTTTTCAATATTAATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTT  
GAATGTATTTAGAAAATAAACAAAATAGGGGTTCCGGCGACATTTCCCGGAAAGTGCCACCTGA  
CGTCTAAGAAACCATTTATCATGACATTAACCTATAAAATAGGCGTATCACGAGGCCCTTTTCG  
TCTTCAAGAAATCCGATCCAGACATGATAAGATACATTTGATGAGTTTGGACAAACCAACTAGA  
ATGCAGTGAAAATAATGCTTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTGTAAACCATTAGAA  
GCTGCAATAAACAAAGTTAACAAACAATTGCAATTCATTTTATGTTTCAGGTTTCAGGGGAGGTGT  
GGGAGGTTTTTTTAAAGCAAGTAAACCTCTACAAATGTGATGCTGATTTATGATCTAAAGCCAG  
CAAAAGTCCCATGGTCTTATAAAATGCATAGCTTTTCGGAGGGAGCAGAGAACTTGAAAGCATC  
TTCCTGTTAGTCTTCTCTCGTAGACCTTAAATTCATCTGATTCCTTTTTCCTCCTGGACCTCAG  
AGAGGACGCCCTGGGTATTTCTGGGAGAAAGTTTATATTTCCCAATACTTTCTGGGAAACAACTGT  
CACTTTCAAAATTCCTGCATGATCCTTGTCAAAAGAGTCTGAGTGCCCTGGTTGATTCATGGCTTC  
CTGGTAAACAGAACTGCCCTCCGACTATCCAAACCATGTCTACTTTACTTGCCAAATTCGGGTTGTTC  
ATAAGTCTTAAGGCATCATCCAAACTTTTGGCAAGAAATGAGCTCCTCGTGTGTTCTTTGAGT  
TCTCTACTGAGAACTATATTAATTCTGTCTCTTTAAAGGTCGATTCTTCTCAGGAAATGGAGAACCCAG

FIG. 2F



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GTTTTCTACCCATAATCACCAGATTCTGTTTACCTTCCACTGAAGAGTTGTGGTCAATTCCTTTGGA  
AGTACTTGAACTCGTTCCTGAGCGGAGGCCAGGGTCGGTCTCCGTTCCTTGCCAAATCCCCATATTTTG  
GGACACGGCGACGATGCAGTTCAATGGTCGAACCATGAGGGCACCAAGCTAGCTTTTGTGCAAAAG  
CCTAGGCCTCCAAAAGCCTCCTCACTACTTCTGGAATAGCTCAGAGGCCGAGGGCCCTCGGCC  
TCTGCATAAATAAAATAAATTAGTCAGCCATGGGGCGGAGAAATGGGCGGAACCTGGGCGGAGTTAG  
GGCGGGATGGCGGAGTTAGGGCGGGAATAAGTTGCTGACTAATTGAGATGCATGCTTTGCA  
TACTTCTGCCTGCTGGGGAGCCTGGGGACTTTCCACACCTGGTTGCTGACTAATTGAGATGCATGC  
TTTGCAATACTTCTGCCTGCTGGGGAGCCTGGGGACTTTCCACACCCCTAACTGACACACATTCACACA  
(SEQ ID NO: 4)

FIG. 2G

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## Humanized Immunoglobulin Light Chain

D-V-V-M-T-Q-T-P-L-S-L-P-V-T-P-G-E-P-A-S-I-S-C-R-S-S-Q-S-L-V-H-R-N-G-N-T-Y-  
L-H-W-Y-L-Q-K-P-G-Q-S-P-K-L-L-I-H-K-V-S-N-R-F-S-G-V-P-D-R-F-S-G-S-G-S-G-T-  
D-F-T-L-K-I-S-R-V-E-A-E-D-L-G-V-Y-F-C-S-Q-S-T-H-V-P-P-L-T-F-G-A-G-T-K-L-E-  
L-K-R-T-V-A-A-P-S-V-F-I-F-P-P-S-D-E-Q-L-K-S-G-T-A-S-V-V-C-L-L-N-N-F-Y-P-R-  
E-A-K-V-Q-W-K-V-D-N-A-L-Q-S-G-N-S-Q-E-S-V-T-E-Q-D-S-K-D-S-T-Y-S-L-S-S-T-  
L-T-L-S-K-A-D-Y-E-K-H-K-V-Y-A-C-E-V-T-H-Q-G-L-S-S-P-V-T-K-S-F-N-R-G-E-C

(SEQ ID NO: 5)

FIG. 3A

## Humanized Immunoglobulin Heavy Chain-IL-2

E-V-Q-L-V-Q-S-G-A-E-V-E-K-P-G-A-S-V-K-I-S-C-K-A-S-G-S-S-F-T-G-Y-N-M-N-W-V-R-Q-N-I-G-K-S-L-E-W-I-G-  
A-I-D-P-Y-Y-G-G-T-S-Y-N-Q-K-F-K-G-R-A-T-L-T-V-D-K-S-T-S-T-A-Y-M-H-L-K-S-L-R-S-E-D-T-A-V-Y-Y-C-V-S-  
G-M-E-Y-W-G-Q-G-T-S-V-T-V-S-S-A-S-T-K-G-P-S-V-F-P-L-A-P-S-S-K-S-T-S-G-G-T-A-A-L-G-C-L-V-K-D-Y-F-P-  
E-P-V-T-V-S-W-N-S-G-A-L-T-S-G-V-H-T-F-P-A-V-L-Q-S-S-G-L-Y-S-L-S-S-V-V-T-V-P-S-S-S-L-G-T-Q-T-Y-I-C-N-  
V-N-H-K-P-S-N-T-K-V-D-K-R-V-E-P-K-S-C-D-K-T-H-T-C-P-P-C-P-A-P-E-L-L-G-G-P-S-V-F-L-F-P-P-K-P-K-D-T-L-  
M-I-S-R-T-P-E-V-T-C-V-V-D-V-S-H-E-D-P-E-V-K-F-N-W-Y-V-D-G-V-E-V-H-N-A-K-T-K-P-R-E-E-Q-Y-N-S-T-Y-  
R-V-V-S-V-L-T-V-L-H-Q-D-W-L-N-G-K-E-Y-K-C-K-V-S-N-K-A-L-P-A-P-I-E-K-T-I-S-K-A-K-G-Q-P-R-E-P-Q-V-Y-  
T-L-P-P-S-R-E-E-M-T-K-N-Q-V-S-L-T-C-L-V-K-G-F-Y-P-S-D-I-A-V-E-W-E-S-N-G-Q-P-E-N-N-Y-K-T-T-P-P-V-L-D-  
S-D-G-S-F-F-L-Y-S-K-L-T-V-D-K-S-R-W-Q-Q-G-N-V-F-S-C-S-V-M-H-E-A-L-H-N-H-Y-T-Q-K-S-L-S-L-S-P-G-A-P-  
T-S-S-S-T-K-K-T-Q-L-Q-L-E-H-L-L-D-L-Q-M-I-L-N-G-I-N-N-Y-K-N-P-K-L-T-R-M-L-T-F-K-F-Y-M-P-K-K-A-T-  
E-L-K-H-L-Q-C-L-E-E-E-L-K-P-L-E-E-V-L-N-L-A-Q-S-K-N-F-H-L-R-P-R-D-L-I-S-N-I-N-V-I-V-L-E-L-K-G-S-E-T-T-  
F-M-C-E-Y-A-D-E-T-A-T-I-V-E-F-L-N-R-W-I-T-F-C-Q-S-I-I-S-T-L-T (SEQ ID NO: 6)

FIG. 3B